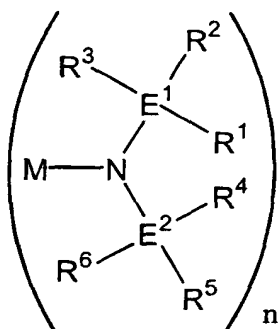


1. A composition for use in the formation of alkali metal-containing materials, comprising:

a compound of an alkali metal and an amide ligand, said compound being a liquid at a temperature of 20 °C.

5 2. The composition as in claim 1, wherein the liquid alkali metal amide has the formula



where M is an alkali metal; E¹ and E² may be the same or different and are tetravalent atoms selected from the group consisting of carbon, silicon, germanium or tin, and R¹, R², R³, R⁴, R⁵ and R⁶ may be the same or different represent and are selected from the group consisting of hydrogen, alkyl groups, fluoroalkyl groups or alkyl groups substituted by other atoms or groups, wherein at least one of R¹, R², R³, R⁴, R⁵ and R⁶ contains more than one carbon atom, and wherein one or more carbons may be replaced by an isoelectronic species, and n is a number equal to or greater than one.

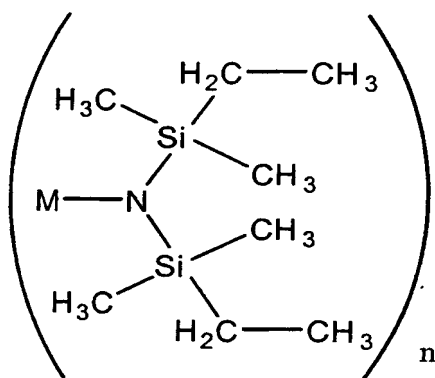
15 3. The composition of claim 2, wherein the groups R¹ and R⁴
contain between two and eight carbons and may be the same or different.

4. The composition of claim 2 or 3, wherein the groups R^2 , R^3 , R^5 and R^6 contain less than three carbons and may be the same or different.

5. The composition of claim 2, wherein the E¹ and E² are selected from the group consisting of carbon and silicon and may be the same or different.

6. The composition of claim 2, wherein the amide ligand is formed from an amine selected from the group consisting of bis(n-octyldimethylsilyl)amine, bis(n-hexyldimethylsilyl)amine, bis(n-butyldimethylsilyl)amine, bis(isobutyldimethylsilyl)amine, bis(n-propyldimethylsilyl)amine, tert-amyl(n-butyldimethylsilyl)amine, tert-amyl(isobutyldimethylsilyl)amine, tert-amyl(n-propyldimethylsilyl)amine, tert-butyl(n-butyldimethylsilyl)amine, tert-amyl(isopropyldimethylsilyl)amine, bis(ethyldimethylsilyl)amine, bis(tert-butyldimethylsilyl)amine, tert-amyl(ethyldimethylsilyl)amine, tert-butyl(n-propyldimethylsilyl)amine, tert-amyl(trimethylsilyl)amine, tert-butyl(ethyldimethylsilyl)amine, and tert-amyl-tert-butylamine.

7. The composition of claim 1, wherein the alkali metal amide has the formula,



8. The composition of claim 1 or 2, wherein the alkali metal is lithium.

9. The composition of claim 1 or 2, wherein the alkali metal is sodium.

5 10. The composition of claim 1 or 2, wherein the alkali metal is potassium.

11. The composition of claim 2 or 7, wherein n is in the range of 2 to 3.

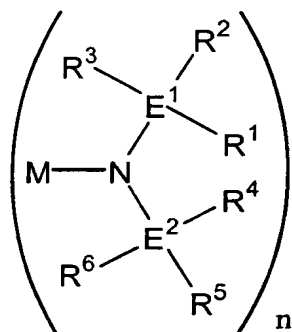
12. The composition of claim 1, wherein the liquid has a viscosity at
10 40 °C in the range of about 20-1000 cP.

13. A composition for use in the formation of alkali metal-containing materials, comprising:

a compound of an alkali metal and an amide ligand, said compound being a liquid at a temperature of less than about 70 °C.

14. A composition for use in the formation of alkali metal-containing materials, comprising:

a solution of a alkali metal amide having the formula



where M is an alkali metal; E¹ and E² may be the same or different and are
 5 tetraivalent atoms selected from the group consisting of carbon, silicon,
 germanium or tin, and R¹, R², R³, R⁴, R⁵ and R⁶ may be the same or different
 represent and are selected from the group consisting of hydrogen, alkyl groups,
 fluoroalkyl groups or alkyl groups substituted by other atoms or groups,
 wherein at least one of R¹, R², R³, R⁴, R⁵ and R⁶ contains more than one carbon
 10 atom, and wherein one or more carbons may be replaced by an isoelectronic
 species, and n is a number equal to or greater than one.

15. A composition as in claim 14, wherein the solution can be flash vaporized and used in a chemical vapor deposition process.

16. A process for forming a material containing an alkali metal,
 15 comprising:
 providing a liquid compound of an amine and an alkali metal, and
 contacting a surface with the liquid or its vapor in a deposition process
 to deposit a material containing an alkali metal.

17. The process of claim 16 in which the deposited material comprises one or more metal oxides.

18. The process of claim 16 in which the alkali metal is selected from the group consisting of lithium, sodium and potassium.

5 19. The process of claim 16 in which the deposited material also contains metals that are not alkali metals.

20. The process of claim 16, wherein the deposition process is a chemical vapor deposition process.

10 21. The process of claim 16, wherein the deposition process is a sol-gel process.

22. The process of claim 16, wherein the deposition process is a spray-coating or spin-coating process.